

A Work Project, presented as part of the requirements for the Award of a Master's Degree in
Finance from the Nova School of Business and Economics

NVIDIA ENVISIONING THE FUTURE

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03-01-2020

Abstract

This paper studies the intrinsic valuation of NVIDIA Corporation and the expected total shareholder return within the next 12 months. In order to do this a discounted cash flow method was used. Using this method, it was estimated that the company is currently undervalued, and shareholders should have a total return of 21% over the next year therefore a buy position is recommended.

Keywords: NVIDIA; Equity Research; Valuation

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

NVIDIA CORPORATION

TECHNOLOGY

STUDENT: JORGE TAVARES

COMPANY REPORT

03 JANUARY 2020

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NVIDIA envisioning the future

- We recommend a **BUY** position on NVIDIA Corporation stock given the price target for FY21 of 279.25\$, representing an upside of 18.3% and a total shareholder return of 21%
- The **acquisition of Mellanox** is expected to create value for Nvidia as the value of improvements through strengthened position in data center market along with synergies between the companies is expected to offset the acquisition premium paid.
- NVIDIA has an **unrivalled strategic position** going into the future as most of their main markets such as gaming and especially automotive and data center are expected to experience tremendous growth and the company has all the right tools and strategy to capitalize on it.

Company description

Nvidia is an American technology company founded in 1993 that has its headquarters in Santa Clara, California.

Recommendation: **BUY**

Price Target FY21: **279.25 \$**

Price (as of 14-Jan-20) **236.07\$**

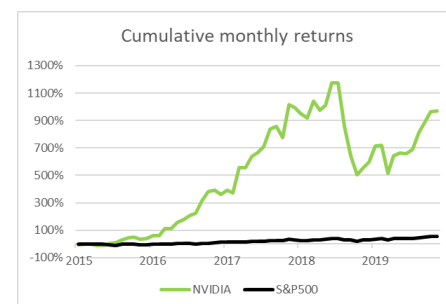
Yahoo finance: NVDA

52-week range (\$) 131.00-241.81

Market Cap (\$Bn) 144.474

Outstanding Shares (m) 612

Source: Yahoo finance



Source:

| (Values in \$ millions) | 2019 | 2020E | 2021F |
|-------------------------|--------|--------|--------|
| Revenues | 11,716 | 11,156 | 13,419 |
| EBITDA | 4,066 | 3,209 | 4,957 |
| Net Profit | 4,141 | 2,893 | 4,526 |
| EPS | 6.77 | 4.73 | 7.4 |
| P/E | 34.87 | 56.6 | 36.18 |
| ROIC | 91% | 72% | 102% |
| Operating margin | 33% | 26% | 34% |

Source: company data and analyst estimations

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY JORGE TAVARES, A MASTER IN FINANCE STUDENT OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

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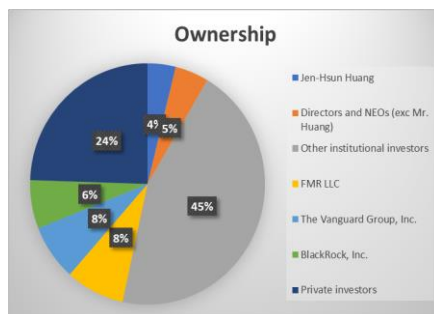
Company overview

Nvidia is an American technology company founded in 1999 that has its headquarters in Santa Clara, California. The company has two main segments: GPU and Tegra, which they use to satisfy needs in five different markets: gaming, data center, professional visualization, automotive and OEM&IP.

Now, the main thing that should be highlighted is the company's strategy in how they operate which is the key behind all the company historical and forecasted profitability and growth. The fact that the company bases itself on some building rocks like GPU, Tegra, CUDA that can cover multiple markets, and align them with platforms that answer vertical market needs and create end-to-end solutions for customers. Additionally, they are heavily invested in key technologies for the future such as artificial intelligence, virtual reality, deep learning, machine learning and high performance computing which then in turn add value to their segments and platforms and vice versa to ultimately boost the effectiveness, differentiation, innovation and quality of the solutions created for the various markets they operate in. This is the key part of their strategy: horizontal resources that can cover a multitude of markets cross industry in a synergistic fashion, alongside with the micro verticals needed to provide end-to-end solutions for clients. It is not

by chance that the company's ROIC is so high. This allows for more effective R&D for instance, better customer loyalty, reduced risk as the investment made is turned to a diversified market, pricing power and so on and so forth. This is the reason we believe has made NVIDIA so successful over the years and expect them to continuously derive value from this approach going forward.

Graph 1: Ownership distribution

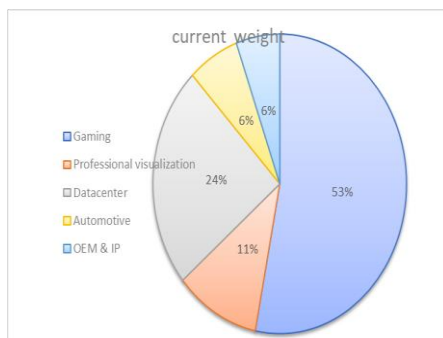


Source: Nvidia and Investopedia

Shareholder structure

Regarding the shareholder's structure, 67% of Nvidia is owned by institutional investors being FMR LLC, the Vanguard Group, Inc. and BlackRock, Inc. the largest ones. Directors own 4.64% of the outstanding shares excluding Jean-Hsun Huang, their CEO, president and founder, who is the individual owning the largest share at 3.87%. The remaining 24.49% is owned by private investors.

Graph 2: current revenue distributions



Source: company data and analyst estimations

Valuation

Revenue was segmented between the five markets Nvidia serves and forecasted separately in order to implement different trends and expectations. Weights of the revenue resulting from each business as of now is shown in graph 2.

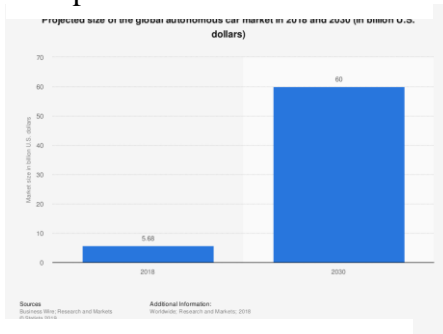
Gaming

Gaming represents currently the largest source of income at 53% of total revenue. Nvidia products for this market include GeForce RTX and GeForce GTX GPUs for PC gaming, SHIELD devices for gaming and streaming, GeForce NOW for cloud-based gaming as well as platforms and development services for specialized console gaming devices. This market is expected to keep growing as games require continuously better technology supporting them as well as for the virtual and augmented realities integration into gaming opportunities. This is where I believe more value can be created and captured as well as potentially in cloud gaming, as the incremental devices for Nvidia dedicated graphic cards should not be at a steep increase and Nvidia already has about 70% of the high-end market for high end GPUs in gaming. Therefore, this segmented was forecasted to grow at a CAGR of 7% over the next 10 years.

Data center

This market totals 24% in fiscal year 2020 and is expected to be the fastest growing market for Nvidia alongside automotive. The company is heavily invested in this business as they see it as being a great market opportunity -making strong investment in developing their necessary technologies to have a big influence in this market such as machine learning and deep learning. Besides, they are planned to acquire Mellanox, which should happen either this fiscal year or the next one (most likely according to Nvidia) which will increase their privileged position to capitalize on this opportunity even further as they are a leading supplier of end-to-end Ethernet and InfiniBand intelligent interconnect solutions and services for servers, storage, and hyper-converged infrastructure, which should synergise perfectly with Nvidia that has already a prominent position in the market and should work as a catalyst to propel the company even more ahead of competition. The data center revenues were forecasted to have a CAGR of 17%.

Graph 3: automotive TAM



Sources: business wire;
research and markets

Automotive

Nvidia's automotive market is comprised of cockpit infotainment solutions, AV platforms and associated development agreements.

The total market size of the autonomous car market is expected to grow to 60 bn\$ from roughly 5 bn\$ in 2018 as illustrated in graph 3.

The CAGR expected is thus 22%. Nvidia was forecasted at a similar trend with around 18% CAGR as the company is in a fantastic position to grow alongside the market as they have several hundred partners in the business -some of which are leading on this matter- including automakers, truck makers, tier-one suppliers, sensor manufacturers automotive research institutions, HD mapping companies and start-ups with whom they work together to make the fully automated vehicle a reality as soon as possible. Therefore, the company is poised to derive significant value from this market although it is uncertain when as there are still legal questions, timing in developing the solutions and customer acceptance.

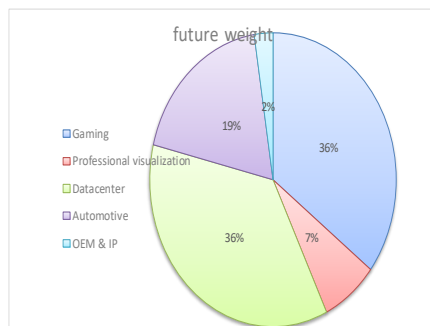
Professional visualization

Professional visualization is turned to industrial needs where image viewed digitally must mirror reality. It has applications in automotive, media and entertainment, architectural engineering, oil and gas as well as medical imaging. Nvidia is very well established in this market and sees steady growth. VR incorporation as well as

recent technologies such as ray tracing can further expand this market. The forecasted CAGR was of 9%.

Revenue

Graph 4: forecasted 2030 revenue share



Source: analyst forecasts

These businesses alongside with OEM & IP which was forecasted at a 4% CAGR make revenue grow at a total of 11% CAGR over the next 10 years. Moreover, this evolution will dramatically change Nvidia revenue share by market resulting in a more diversified portfolio with gaming and data center being the prevalent driving forces with 36%, automotive having 19%, followed by professional visualization at 7% and finally OEM&IP occupying a negligible 2% share, depicted by graph 4. This would result in a better diversified company less exposed to the risks inherent to not being diversified such as gaming cyclical and seasonal nature.

Model

These were the main drivers of the company future, additionally balance sheet and income statement were forecasted as functions of their key drivers, with small adjustments making some assumptions

such as increased synergy improvements at the beginning with Mellanox acquisition, the growth of these markets and the fact that the company might start deriving value now from investments made over the recent years, and then some gradual adjustments such as higher R&D costs in order to remain competitive with the other companies and keeping on developing innovative and quality products that may not immediately pay off. After that the free cash flows of the company were computed and valued using the discounted cash flow model. Together with the valuation of other components not incorporated in the FCF we arrived at the intrinsic value and consequently at the intrinsic share price. To discount these cash flows a WACC as a result of: a market risk premium of 5.75% as recommended by KPMG which seems a reasonable adaptation from the usual 5% given the current low interest rates; a beta computed from the unlevered betas of Nvidia and peers, although Nvidia is usually more volatile than most of their peers as the company is shifting their business it made sense than their profile risk converge to the median along with the fact that individual betas estimations are often imprecise; after tax cost of debt derived from the current 21% marginal tax rate along with the yield to maturity on Nvidia long term debt; a risk free rate derived from the 10 year US treasury; and a capital structure that was assumed to remain the same as it is also similar for peers as companies with higher growth potential and risk and highly specific assets and capabilities tend to use lower leverage, also the tax rate is

lower which gives inferior tax shields incentives making it a less enticing option, and running lower debt allows more financial freedom to capture future growth, (for instance Nvidia acquisition of Mellanox in cash), ultimately giving us a WACC of 8.72% and the growth rate in perpetuity applied was 4.5% which seem reasonable for NVIDIA given its historical performance and forecasted performance and taking into account the growth in the sector the company is in. A sensitivity analysis of the stock price in relation to the WACC and growth rate was performed as shown in the table 1.

Table 1: sensitivity analysis

| | | WACC | | | | | | |
|--------|--------------|------|------|------|------------|-------|-------|--------|
| | | 7.2% | 7.7% | 8.2% | 8.7% | 9.22% | 9.72% | 10.22% |
| Growth | 3% | 326 | 290 | 261 | 238 | 218 | 201 | 187 |
| | 3.50% | 352 | 309 | 276 | 249 | 227 | 208 | 193 |
| | 4% | 386 | 334 | 294 | 263 | 237 | 216 | 199 |
| | 4.50% | 433 | 366 | 317 | 279 | 250 | 226 | 207 |
| | 5% | 501 | 409 | 346 | 300 | 265 | 238 | 216 |
| | 5.5% | 608 | 473 | 387 | 328 | 285 | 252 | 226 |
| | 6.0% | 803 | 573 | 446 | 366 | 311 | 271 | 240 |

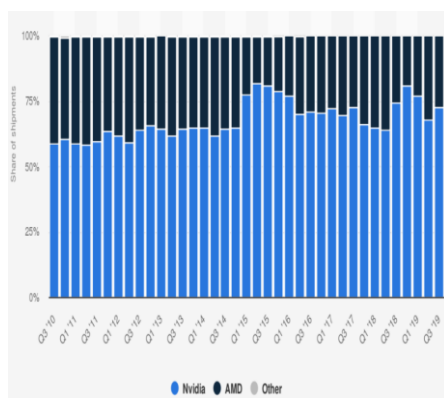
The sector

Considering the company operates in the technology sector and its inherent characteristics such as fast-changing environment with constant innovation and evolution that allows whole new business lines to be created out of thin air, it was considered that a multiples

valuation would not provide relevant insights, as they fail to capture what drives the companies' valuation which should be linked to the value it can create in the future. Therefore, it was considered that looking at P/E or EV/EBITA even if it is forward looking one year from now would not accurately represent an adequate valuation metric in this case as those could look totally different on the very long term when the environment changes and the companies evolve with little correlation to those observable in the near future and thus it would not add value on top of the DCF model used for valuing NVIDIA.

Comparables

Graph 5: AIB market share



Source: Jon Peddie Research

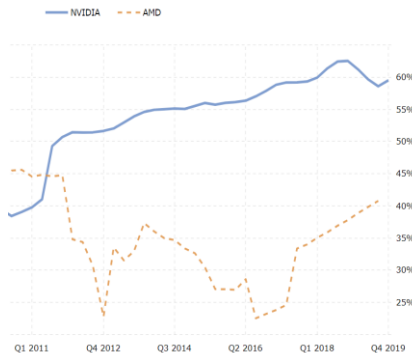
Despite of this, it is found to still be useful and interesting, for a better understanding and perspective on the company position within its sector, to see how Nvidia fares against AMD, which is the most comparable firm being a peer and main competitor as both have their main activity the GPU gaming market, which therefore is one of the key core base foundations of Nvidia going into the future. The two companies split the between themselves nearly all the add-in-board GPU market as seen in the graph 5 with Nvidia holding nearly 73% of it in Q3 19. This depicts well how the

company manages to maintain and even increase its stronger position within the market relatively to AMD over the last years.

Moreover, the company's revenue has been growing at a higher rate than that of AMD, while having higher gross margins as seen in the graphs 6. Ultimately the company has a competitive advantage over AMD, being able to charge a price premium, (especially at the release of a new product), as it produces more efficiently as shown by their gross margin and additionally the products are often more innovative and have higher quality and the company has better brand and customer lock-in - there is a reason that the vast majority of gamers on Steam use Nvidia's graphic cards instead of AMD's as seen in graph 7.

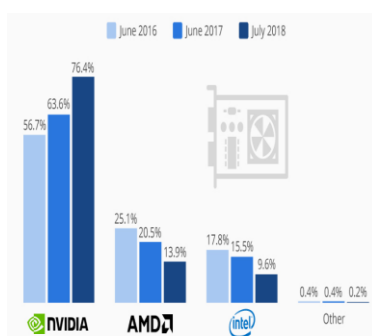
This paradigm and the consistent innovative trend of the company entices us to believe that Nvidia will keep being the dominant force in the GPU gaming market, which is of utter importance as it allows not only for the company to keep performing as it is the main activity, as well as giving it financial stability and act as leverage so the company can pursue growth opportunities on the remaining addressable markets it has targeted and in which, it is more uncertain if and especially when the investments made will pay off, more so on the autonomous vehicles department which while we believe it will pay off big, eventually, it is incredibly hard to predict when, as there are multiple barriers as covered before.

Graph 6: Nvidia and AMD gross margins



Source: macrotrends

Graphic 7: Graphic card of Steam gamers



Source: Steam

Appendix

| \$ million | FY 17 | FY 18 | FY 19 | FY 20 | FY21E | FY22E | FY23E | FY24E | FY25E | FY26E | FY27E | FY28E | FY29E | FY30E |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Revenue | 6,910 | 9,714 | 11,716 | 11,156 | 13,419 | 15,614 | 17,989 | 20,580 | 23,342 | 26,263 | 29,231 | 32,163 | 34,917 | 37,647 |
| Cost of revenue | 2,847 | 3,892 | 4,545 | 4,281 | 4,747 | 5,562 | 6,453 | 7,434 | 8,490 | 9,618 | 10,778 | 11,940 | 13,049 | 14,164 |
| Gross profit | 4,063 | 5,822 | 7,171 | 6,875 | 8,672 | 10,052 | 11,536 | 13,146 | 14,852 | 16,645 | 18,453 | 20,223 | 21,867 | 23,483 |
| Operating expenses | | | | - | | | | | | | | | | |
| Research and development | 1,463 | 1,797 | 2,376 | 2,913 | 2,818 | 3,279 | 3,832 | 4,445 | 5,112 | 5,830 | 6,577 | 7,333 | 8,066 | 8,809 |
| Sales, general and administrative | 663 | 815 | 991 | 1,106 | 1,275 | 1,503 | 1,754 | 2,032 | 2,334 | 2,659 | 2,996 | 3,337 | 3,666 | 4,000 |
| Restructuring and other charges | 3 | - | - | - | | | | | | | | | | |
| Total operating expenses | 2,129 | 2,612 | 3,367 | 4,019 | 4,093 | 4,782 | 5,586 | 6,478 | 7,446 | 8,489 | 9,573 | 10,670 | 11,732 | 12,809 |
| Income from operations | 1,934 | 3,210 | 3,804 | 2,857 | 4,579 | 5,270 | 5,950 | 6,668 | 7,406 | 8,155 | 8,880 | 9,553 | 10,135 | 10,674 |
| Depreciation | 118 | 144 | 233 | 328 | 355 | 426 | 505 | 593 | 690 | 796 | 911 | 1,031 | 1,154 | 1,273 |
| Amortization of intangibles | 68 | 55 | 29 | 24 | 23 | 32 | 45 | 62 | 82 | 106 | 133 | 164 | 198 | 234 |
| EBITDA | 2,120 | 3,409 | 4,066 | 3,209 | 4,957 | 5,728 | 6,501 | 7,323 | 8,178 | 9,057 | 9,924 | 10,749 | 11,487 | 12,181 |
| Interest income | 54 | 69 | 136 | 197 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Interest expense | - 58 | - 61 | - 58 | - 52 | - 51 | - 51 | - 51 | - 51 | - 51 | - 51 | - 51 | - 51 | - 51 | - 51 |
| Other, net | - 25 | - 22 | 14 | - | | | | | | | | | | |
| Total other income (expense) | - 29 | - 14 | 92 | 145 | 131 | 131 | 131 | 131 | 131 | 131 | 131 | 131 | 131 | 131 |
| Income before income tax | 1,905 | 3,196 | 3,896 | 3,002 | 4,710 | 5,401 | 6,081 | 6,799 | 7,537 | 8,286 | 9,010 | 9,684 | 10,266 | 10,805 |
| Income tax expense (benefit) | 239 | 149 | - 245 | 109 | 184 | 207 | 230 | 253 | 278 | 303 | 327 | 349 | 368 | 386 |
| Net income | 1,666 | 3,047 | 4,141 | 2,893 | 4,526 | 5,194 | 5,851 | 6,546 | 7,259 | 7,983 | 8,684 | 9,335 | 9,898 | 10,418 |

Income statement

| | FY 17 | FY 18 | FY 19 | FY 20 | FY21 | FY22 | FY23 | FY24E | FY25E | FY26E | FY27E | FY28E | FY29E | FY30 |
|---|---------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| ASSETS | | | | | | | | | | | | | | |
| Current assets: | | | | | | | | | | | | | | |
| Cash, cash equivalents and marketable securities | 6,798 | 7,108 | 7,422 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 | 9,769 |
| Cash and cash equivalents | 1,766 | 4,002 | 782 | 9,765 | 4,708 | 4,708 | 4,708 | 4,708 | 4,708 | 4,708 | 4,708 | 4,708 | 4,708 | 4,708 |
| Marketable securities | 5,032 | 3,106 | 6,640 | 4 | 5,061 | 5,061 | 5,061 | 5,061 | 5,061 | 5,061 | 5,061 | 5,061 | 5,061 | 5,061 |
| Accounts receivable, net | 826 | 1,265 | 1,424 | 1,455 | 1,683 | 2,033 | 2,186 | 2,684 | 2,928 | 3,474 | 4,067 | 4,695 | 5,336 | 6,011 |
| Inventories | 794 | 796 | 1,575 | 1,047 | 1,275 | 1,494 | 1,822 | 2,201 | 2,630 | 3,111 | 3,634 | 4,189 | 4,757 | 5,357 |
| Prepaid expenses and other current assets | 118 | 86 | 136 | 149 | 171 | 138 | 209 | 275 | 297 | 349 | 404 | 462 | 521 | 582 |
| Total current assets | 8,536 | 9,255 | 10,557 | 12,420 | 12,898 | 13,435 | 13,986 | 14,929 | 15,624 | 16,702 | 17,873 | 19,115 | 20,383 | 21,720 |
| Property and equipment, net | 521 | 997 | 1,404 | 1,517 | 1,825 | 2,162 | 2,536 | 2,953 | 3,407 | 3,899 | 4,413 | 4,936 | 5,446 | 5,966 |
| Operating lease assets | | | | 527 | 701 | 894 | 1,120 | 1,384 | 1,686 | 2,028 | 2,404 | 2,806 | 3,221 | 3,661 |
| Goodwill | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 |
| Intangible assets, net | 104 | 52 | 45 | 43 | 58 | 84 | 114 | 151 | 195 | 246 | 303 | 365 | 431 | 503 |
| Deferred income tax assets | | 245 | 560 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 | 569 |
| Other assets | 62 | 74 | 108 | 116 | 121 | 141 | 163 | 186 | 211 | 238 | 265 | 291 | 316 | 341 |
| Total assets | 9,841 | 11,241 | 13,292 | 15,810 | 16,790 | 17,903 | 19,106 | 20,790 | 22,310 | 24,300 | 26,445 | 28,700 | 30,984 | 33,377 |
| LIABILITIES, CONVERTIBLE DEBT CONVERSION OBLIGATION AND SHAREHOLDERS' EQUITY | | | | | | | | | | | | | | |
| Current liabilities: | | | | | | | | | | | | | | |
| Accounts payable | 485 | 596 | 511 | 591 | 655 | 798 | 926 | 1,067 | 1,218 | 1,380 | 1,547 | 1,713 | 1,872 | 2,032 |
| Accrued and other current liabilities | 507 | 542 | 818 | 795 | 985 | 871 | 1,256 | 1,467 | 1,577 | 1,774 | 1,975 | 2,173 | 2,359 | 2,544 |
| Convertible short-term debt | 796 | 15 | | | | | | | | | | | | |
| Total current liabilities | 1,788 | 1,153 | 1,329 | 1,386 | 1,640 | 1,669 | 2,182 | 2,533 | 2,795 | 3,154 | 3,522 | 3,886 | 4,232 | 4,576 |
| Other debt | 1,983 | 1,985 | 1,988 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 | 1,990 |
| Operating lease liabilities | - | - | | 558 | 732 | 925 | 1,151 | 1,415 | 1,717 | 2,059 | 2,435 | 2,837 | 3,252 | 3,692 |
| Other long-term liabilities | 277 | 632 | 633 | 662 | 733 | 853 | 983 | 1,124 | 1,275 | 1,435 | 1,597 | 1,757 | 1,907 | 2,057 |
| Total Liabilities | 4,048 | 3,770 | 3,950 | 4,596 | 5,095 | 5,437 | 6,305 | 7,062 | 7,778 | 8,639 | 9,543 | 10,470 | 11,381 | 12,314 |
| Commitments and contingencies | | | | | | | | | | | | | | |
| Convertible debt conversion obligation | 31 | | | | | | | | | | | | | |
| Shareholders' equity | | | | | | | | | | | | | | |
| Common stock | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Additional paid-in capital | 4,708 | 5,351 | 6,051 | 6,824 | | | | | | | | | | |
| Treasury stock, at cost | (5,039) | (6,650) | (9,263) | (9,726) | | | | | | | | | | |
| Accumulated other comprehensive loss | (16) | (18) | (12) | (3) | | | | | | | | | | |
| Retained earnings | 6,108 | 8,787 | 12,565 | 14,118 | | | | | | | | | | |
| Total shareholders' equity | 5,762 | 7,471 | 9,342 | 11,214 | 11,696 | 12,466 | 12,801 | 13,727 | 14,533 | 15,662 | 16,901 | 18,230 | 19,603 | 21,063 |

Balance sheet

Invested Capital

Total funds invested: uses

| \$ millions | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| Operating cash | 138 | 194 | 234 | 223 | 268 | 312 | 360 | 412 | 467 | 525 | 585 | 643 | 698 | 753 |
| Accounts receivable | 826 | 1265 | 1424 | 1455 | 1683 | 2033 | 2186 | 2684 | 2928 | 3474 | 4067 | 4695 | 5336 | 6011 |
| Inventories | 794 | 796 | 1575 | 1047 | 1275 | 1494 | 1822 | 2201 | 2630 | 3111 | 3634 | 4189 | 4757 | 5357 |
| Prepaid expenses and other current assets | 118 | 86 | 136 | 149 | 171 | 138 | 209 | 275 | 297 | 349 | 404 | 462 | 521 | 582 |
| Operating current assets | 1876 | 2341 | 3369 | 2874 | 3397 | 3978 | 4577 | 5571 | 6321 | 7459 | 8689 | 9989 | 11312 | 12704 |
| Accounts payable | 485 | 596 | 511 | 591 | 655 | 798 | 926 | 1067 | 1218 | 1380 | 1547 | 1713 | 1872 | 2032 |
| Accrued and other current liabilities | 473 | 515 | 774 | 795 | 985 | 871 | 1256 | 1467 | 1577 | 1774 | 1975 | 2173 | 2359 | 2544 |
| Operating current liabilities | 958 | 1111 | 1285 | 1386 | 1640 | 1669 | 2182 | 2533 | 2795 | 3154 | 3522 | 3886 | 4232 | 4576 |
| Operating working capital | 918 | 1230 | 2084 | 1488 | 1757 | 2309 | 2395 | 3038 | 3526 | 4304 | 5168 | 6103 | 7081 | 8128 |
| Property, plant and equipment | 521 | 997 | 1404 | 1517 | 1825 | 2162 | 2536 | 2953 | 3407 | 3899 | 4413 | 4936 | 5446 | 5966 |
| Other non-current assets | 62 | 74 | 108 | 116 | 121 | 141 | 163 | 186 | 211 | 238 | 265 | 291 | 316 | 341 |
| Operating leases | 216 | 475 | 588 | 756 | 701 | 894 | 1120 | 1384 | 1686 | 2028 | 2404 | 2806 | 3221 | 3661 |
| Other non-current liabilities | -136 | -614 | -614 | -662 | -733 | -853 | -983 | -1124 | -1275 | -1435 | -1597 | -1757 | -1907 | -2057 |
| Invested capital (excluding goodwill) | 1581 | 2163 | 3570 | 3215 | 3671 | 4653 | 5231 | 6437 | 7556 | 9035 | 10652 | 12379 | 14156 | 16039 |
| Goodwill | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 | 618 |
| Intangible assets, less tax gross up | 93 | 48 | 43 | 43 | 58 | 84 | 114 | 151 | 195 | 246 | 303 | 365 | 431 | 503 |
| Invested capital (including goodwill) | 2292 | 2829 | 4231 | 3876 | 4348 | 5355 | 5963 | 7206 | 8369 | 9899 | 11573 | 13362 | 15205 | 17159 |

Reconciliation of Total Funds Invested

| USD millions | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Invested capital (including goodwill) | 2292 | 2829 | 4231 | 3876 | 4348 | 5355 | 5963 | 7206 | 8369 | 9899 | 11573 | 13362 | 15205 | 17159 |
| Excess cash | 1628 | 3808 | 548 | 9542 | 4440 | 4396 | 4348 | 4296 | 4241 | 4183 | 4123 | 4065 | 4010 | 3955 |
| Marketable securities | 5032 | 3106 | 6640 | 4 | 5061 | 5061 | 5061 | 5061 | 5061 | 5061 | 5061 | 5061 | 5061 | 5061 |
| Total funds invested | 8952 | 9742 | 11419 | 13422 | 13848 | 14811 | 15372 | 16563 | 17671 | 19142 | 20757 | 22488 | 24276 | 26175 |
| Total funds invested: sources | | | | | | | | | | | | | | |
| Convertible short term debt | 796 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Long term debt | 1983 | 1985 | 1988 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 |
| Convertible debt conversion obligation | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Coupon interest on debt obligations | 21 | 20 | 20 | | | | | | | | | | | |
| Accrued legal settlement costs | 0 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accrued restructuring and other charges | 13 | 7 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nonoperating deferred income tax liabilities (assets) | -973 | -670 | -737 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Operating lease liabilities | 216 | 475 | 588 | 787 | 732 | 925 | 1151 | 1415 | 1717 | 2059 | 2435 | 2837 | 3252 | 3692 |
| Debt and debt equivalents | 2087 | 1832 | 1883 | 2777 | 2722 | 2915 | 3141 | 3405 | 3707 | 4049 | 4425 | 4827 | 5242 | 5682 |
| Operating deferred income tax liabilities (assets) | 1103 | 439 | 194 | -569 | -569 | -569 | -569 | -569 | -569 | -569 | -569 | -569 | -569 | -569 |
| Shareholders' equity | 5762 | 7471 | 9342 | 11214 | 11696 | 12466 | 12801 | 13727 | 14533 | 15662 | 16901 | 18230 | 19603 | 21063 |
| Equity and equity equivalents | 6865 | 7910 | 9536 | 10645 | 11127 | 11897 | 12232 | 13158 | 13964 | 15093 | 16332 | 17661 | 19034 | 20494 |
| Total funds invested | 8952 | 9742 | 11419 | 13422 | 13848 | 14811 | 15372 | 16563 | 17671 | 19142 | 20757 | 22488 | 24276 | 26175 |

Invested capital

NOPLAT

| \$ millions | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|--|-------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Revenue | 6910 | 9714 | 11716 | 11156 | 13419 | 15614 | 17989 | 20580 | 23342 | 26263 | 29231 | 32163 | 34917 | 37647 |
| Cost of revenue | -2847 | -3892 | -4545 | -4281 | -4747 | -5562 | -6453 | -7434 | -8490 | -9618 | -10778 | -11940 | -13049 | -14164 |
| Implicit lease interest expense | 5 | 11 | 14 | 18 | 18 | 23 | 26 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| Gross profit | 4068 | 5833 | 7185 | 6893 | 8690 | 10075 | 11562 | 13175 | 14881 | 16673 | 18481 | 20252 | 21896 | 23512 |
| Research and development | -1463 | -1797 | -2376 | -2913 | -2818 | -3279 | -3832 | -4445 | -5112 | -5830 | -6577 | -7333 | -8066 | -8809 |
| Sales, general and administrative | -663 | -815 | -991 | -1106 | -1275 | -1503 | -1754 | -2032 | -2334 | -2659 | -2996 | -3337 | -3666 | -4000 |
| Operating profit | 1942 | 3221 | 3818 | 2875 | 4598 | 5293 | 5976 | 6697 | 7435 | 8184 | 8908 | 9582 | 10164 | 10703 |
| Operating cash taxes | -247 | -821 | 43 | -82 | -160 | -184 | -207 | -231 | -256 | -281 | -305 | -327 | -346 | -364 |
| After-tax operating profits | 1695 | 2401 | 3861 | 2793 | 4438 | 5109 | 5769 | 6466 | 7179 | 7903 | 8604 | 9255 | 9818 | 10338 |
| Operating Taxes | | | | | | | | | | | | | | |
| \$ millions | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| Marginal taxes on EBIT | 684 | 1103 | 824 | 621 | 992 | 1143 | 1290 | 1446 | 1605 | 1767 | 1923 | 2068 | 2194 | 2310 |
| Other operating taxes | -437 | -946 | -1112 | -539 | -832 | -959 | -1083 | -1214 | -1349 | -1486 | -1618 | -1741 | -1848 | -1946 |
| Decrease in operating DTL, net of operating DTA (decr) | 664 | 245 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Operating cash taxes | 247 | 821 | -43 | 82 | 160 | 184 | 207 | 231 | 256 | 281 | 305 | 327 | 346 | 364 |

Reconciliation to Net Income

| USD millions | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Net income | 1666 | 3047 | 4141 | 2893 | 4526 | 5194 | 5851 | 6546 | 7259 | 7983 | 8684 | 9335 | 9898 | 10418 |
| Decrease in operating DTL, net of operating DTA (incre) | -664 | -245 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nonoperating taxes | 5 | 1 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Interest income | -54 | -69 | -136 | -197 | -182 | -182 | -182 | -182 | -182 | -182 | -182 | -182 | -182 | -182 |
| Interest expense | 63 | 72 | 72 | 70 | 69 | 74 | 77 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Restructuring and other charges | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other, net | 25 | 22 | -14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Noncore taxes | -13 | -9 | 17 | 27 | 24 | 23 | 23 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| After-tax operating profits | 1695 | 2401 | 3861 | 2793 | 4438 | 5109 | 5769 | 6466 | 7179 | 7903 | 8604 | 9255 | 9818 | 10338 |

NOPLAT

| USD millions | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|-------------|---------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| NOPLAT | 2401 | 3861 | 2793 | 4438 | 5109 | 5769 | 6466 | 7179 | 7903 | 8604 | 9255 | 9818 | 10338 |
| Changes in invested capital | -537 | -1402 | 355 | -472 | -1007 | -609 | -1243 | -1163 | -1530 | -1674 | -1789 | -1843 | -1954 |
| Free cash flow | 1864 | 2458.5 | 3147.9 | 3966 | 4102 | 5160 | 5223 | 6016 | 6373 | 6929 | 7466 | 7975 | 8384.276 |
| Reconciliation of Cash Flows available to Investors | | | | | | | | | | | | | |
| USD millions | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
| FCF | 1864 | 2458 | 3148 | 3966 | 4102 | 5160 | 5223 | 6016 | 6373 | 6929 | 7466 | 7975 | 8384 |
| Interest income | 69 | 136 | 197 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 |
| Nonoperating taxes | -1 | -26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Restructuring and other charges | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other, net | -22 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Excess cash | -2180 | 3260 | -8994 | 5102 | 44 | 48 | 52 | 55 | 58 | 59 | 59 | 55 | 55 |
| Marketable securities | 1924 | -3528 | 6649 | -5057 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accrued legal settlement costs | 0 | 24 | -24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Accrued restructuring and other charges | -6 | -7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Increase (decrease) in operating DTL, net of operating DTA (increase) | 664 | 245 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Increase(decrease) in nonoperating deferred income tax liabilities (assets) | 303 | -67 | 737 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Others non core taxes | 9 | -17 | -27 | -24 | -23 | -23 | -22 | -22 | -22 | -22 | -22 | -22 | -22 |
| Nonoperating CF | 760 | 34 | -1463 | 203 | 202 | 207 | 212 | 215 | 218 | 219 | 218 | 215 | 214 |
| CF available to investors | 2624 | 2493 | 1685 | 4169 | 4305 | 5367 | 5434 | 6231 | 6591 | 7148 | 7684 | 8189 | 8599 |
| Interest expense | 72 | 72 | 70 | 69 | 74 | 77 | 80 | 80 | 80 | 80 | 80 | 80 | 80 |
| Decrease (increase) in convertible short term debt | 781 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Decrease (increase) in long term debt | -2 | -3 | -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Decrease (increase) in operating leases | -260 | -112 | -199 | 55 | -193 | -226 | -264 | -302 | -342 | -375 | -402 | -415 | -440 |
| Convertible debt conversion obligation | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Coupon interest on debt obligations | 1 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <u>Flows to debt holders</u> | <u>624</u> | <u>-28</u> | <u>-112</u> | <u>124</u> | <u>-119</u> | <u>-149</u> | <u>-185</u> | <u>-223</u> | <u>-263</u> | <u>-296</u> | <u>-322</u> | <u>-335</u> | <u>-360</u> |
| Flows to equity holders | 2000 | 2521 | 1797 | 4044 | 4424 | 5516 | 5619 | 6454 | 6854 | 7444 | 8006 | 8525 | 8959 |
| CF to investors | 2624 | 2493 | 1685 | 4169 | 4305 | 5367 | 5434 | 6231 | 6591 | 7148 | 7684 | 8189 | 8599 |

FCF

| Key indicators | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Growth rate of NOPLAT | 42% | 61% | -28% | 59% | 15% | 13% | 12% | 11% | 10% | 9% | 8% | 6% | 5% |
| RONIC | 131% | 104% | 116% | 114% | 67% | 108% | 56% | 61% | 47% | 42% | 36% | 31% | 27% |
| ROIC | 85% | 91% | 72% | 102% | 95% | 97% | 90% | 86% | 80% | 74% | 69% | 65% | 60% |
| Reinvestment rate | 49% | 67% | -38% | 58% | 16% | 13% | 13% | 13% | 13% | 12% | 11% | 9% | 9% |
| Operating margin | 33% | 33% | 26% | 34% | 34% | 33% | 33% | 32% | 31% | 30% | 30% | 29% | 28% |

Key indicators

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Report Recommendations

| | |
|-------------|---|
| Buy | Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period. |
| Hold | Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period. |
| Sell | Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period. |

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